

REMARKS**35 U.S.C. 112 Rejections**

Claims 9-17 are rejected under 35 U.S.C. 112, first paragraph, as "failing to comply with the enablement requirement." See office action, page 2. Specifically, the Examiner states "[i]n claim 9, 'at least two quantum well layers separated by a barrier layer' is claimed. However, each well layer is sandwiched by two barrier layers. Therefore, there should be more than one barrier layer in this multiple quantum well." See office action, page 2. Applicants respectfully traverse the rejection.

1. Claims 9-17 are enabled by the specification.

First, Applicants respectfully submit that the claims are enabled by the specification. The standard for enablement is set forth in MPEP section 2164.08 as:

The Federal Circuit has repeatedly held that "the specification must teach those skilled in the art how to make and use the full scope of the claimed invention without 'undue experimentation'." In re Wright, 999 F.2d 1557, 1561, 27 USPQ2d 1510, 1513 (Fed. Cir. 1993). Nevertheless, not everything necessary to practice the invention need be disclosed. In fact, what is well-known is best omitted. In re Buchner, 929 F.2d 660, 661, 18 USPQ2d 1331, 1332 (Fed. Cir. 1991). All that is necessary is that one skilled in the art be able to practice the claimed invention, given the level of knowledge and skill in the art.

Applicants note that throughout the application, for example at page 5 line 26 to page 6 line 2, at page 8 lines 26-29, and page 11 line 29 to page 12 line 2, specific examples of devices including "at least two quantum wells separated by a barrier layer", including information such as the thickness and composition of each of the layers, are described. At page 12, lines 14-18, Applicants teach how to form these devices. Accordingly, Applicant has provided enough information to allow a person of skill in the art to practice the invention.

2. The Examiner has not met his burden for establishing an enablement**rejection.**

Applicants respectfully submit that the Examiner has not met his burden for establishing an enablement rejection. MPEP 2164.04 states:

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In order to make a rejection, the examiner has the initial burden to establish a reasonable basis to question the enablement provided for the claimed invention.

....
The language [of the rejection] should focus on those factors, reasons, and evidence that lead the examiner to conclude that the specification fails to teach how to make and use the claimed invention without undue experimentation, or that the scope of any enablement provided to one skilled in the art is not commensurate with the scope of protection sought by the claims. This can be done by making specific findings of fact, supported by the evidence, and then drawing conclusions based on these findings of fact . . . [S]pecific technical reasons are always required." (Emphasis in original omitted, emphasis added.)

The Examiner's rejection is totally lacking any specific technical reasons, findings of fact, or evidence required by the above-quoted section of the MPEP. In order to reject claims 9-17 for lack of enablement, the Examiner must provide evidence or technical reasons why claims 9-17 are not enabled. The Examiner's explanation is totally devoid of reasons why the disclosure is insufficient. Since the Examiner has failed to provide such evidence or reasons, the Examiner has not formulated a proper enablement rejection.

3. The Examiner's statement that "there should be more than one barrier layer in this multiple quantum well" is contrary to established law.

In rejecting claims 9-17, the Examiner states "[i]n claim 9, 'at least two quantum well layers separated by a barrier layer' is claimed. However, each well layer is sandwiched by two barrier layers. Therefore, there should be more than one barrier layer in this multiple quantum well." See office action, page 2. With this statement, the Examiner seems to be invoking MPEP section 2164.08, which requires that the scope of the claims be commensurate with the enablement in the specification. MPEP section 2164.08 states requires that "all questions of enablement are evaluated against the claimed subject matter. The focus of the examination inquiry is whether everything within the scope of the claim is enabled." As described above, the specification provides specific example devices and information on how to grow the specific example devices, thus enabling the entire scope of the claim, and in particular the entire scope of the claim element noted by the Examiner.

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MPEP 2164.08 further states that "the scope of enablement must only bear a 'reasonable correlation' to the scope of the claims." Emphasis added. "That the claims are interpreted in light of the specification does not mean that everything in the specification is read into the claims." Applicants respectfully point out that the above-quoted language clearly states that not every feature of a device needs to be included in the claims for the scope of the claims to correlate to the scope of enablement. Thus, the Examiner is attempting to force Applicants to narrow claims 9-17 in a way that is not required by the enablement requirement.

In addition, the Examiner's statement that "each well layer is sandwiched by two barrier layers. Therefore, there should be more than one barrier layer in this multiple quantum well" is simply not true. Nowhere does the specification state that each well layer must be sandwiched by two barrier layers.

In view of the above arguments, Applicants respectfully submit that claims 9-17 are enabled and request that the Examiner withdraw his rejections under 35 U.S.C. 112, first paragraph.

35 U.S.C. 102 Rejections

Claims 9, 11-13, 17, 25, and 27-29 are rejected under 35 U.S.C. 102(b) as being anticipated by Jewell et al., U.S. Patent No. 5,960,018 (hereinafter "Jewell"). Applicants respectfully traverse the rejection. Claims 9 and 25 are amended to recite graded layers with the stoichiometry $\text{In}_x\text{Al}_y\text{Ga}_{1-x-y}\text{N}$ where $0 \leq x \leq 1$, $0 \leq y \leq 1$, $x + y \leq 1$. This amendment is supported by, for example, page 5, lines 20 and 21 and originally filed claims 14 and 30. In contrast, in Jewell's column 26, lines 55-65, the passage of Jewell cited by the Examiner as teaching a III-nitride alloy, the layers are InGaAsN. Because Jewell's layers contain As, they

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are not $\text{In}_x\text{Al}_y\text{Ga}_{1-x-y}\text{N}$ as recited in claims 9 and 25. Jewell thus fails to teach every element of claims 9 and 25.

In addition, it would not be obvious to modify Jewell to remove the As from these layers, since Jewell teaches at column 27, lines 19 and 20 that "it is difficult to grow laser-quality InGaAs with large N contents." Accordingly, given the teachings of Jewell, a person of skill in the art would have no expectation that Jewell's InGaAsN layers could be successfully modified into $\text{In}_x\text{Al}_y\text{Ga}_{1-x-y}\text{N}$ layers as recited in claims 9 and 25.

Claims 11-13, 17, and 27-29 depend from claims 9 and 25 and are therefore allowable for at least the same reasons as claims 9 and 25. In addition, regarding claims 11 and 27, Applicants can find no teaching in Figs. 5b - 5f of Jewell of asymmetrically graded compositions.

35 U.S.C. 103 Rejections

Claims 10, 14-16, 26, and 30-32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jewell in view of Tadatomo et al, U.S. Patent 5,810,925 (hereinafter "Tadatomo"). Applicants respectfully traverse the rejection. Tadatomo cannot be combined with Jewell since Jewell specifically teaches away from combination with Tadatomo. At column 27, lines 19-20, Jewell states "it is difficult to grow laser-quality InGaAs with large N contents." Accordingly, Jewell teaches away from the use of Jewell's teachings in III-V devices where the only group V element is nitrogen, such as Tadatomo. MPEP section 2145 X D 2 states that "references cannot be combined where [one] reference teaches away from their combination." See also, for example, *Tec Air, Inc. v. Denso Mfg. Michigan Inc.*, 192 F.3d 1353, 1359, which states "[t]here is no suggestion to combine, however, if a reference teaches away from its combination with another source." The above-quoted MPEP section and case law clearly state that a combination of references cannot be made where one of the

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references (Jewell in this case) teaches away from combination with the other. Thus, since Applicant has cited language in Jewell that clearly teaches away from combination with a III-V device including only N as the group V element, such as Tadatomo, Jewell cannot properly be combined with Tadatomo.

Claims 10, 15, 16, 26, 31, and 32 depend from claims 9 and 25 and are thus allowable for at least the same reasons that claims 9 and 25 are allowable, since Tadatomo cannot be combined with Jewell. Claims 14 and 30 are canceled rendering their rejection moot.

In view of the above arguments, Applicants respectfully request allowance of claims 9-17 and 25-32. Should the Examiner have any questions, the Examiner is invited to call the undersigned at (408) 382-0480.

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